Personality and BMI in adolescence: A machine learning study

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Adolescent obesity is a growing epidemic worldwide. While environmental and demographic factors certainly play a role, personality traits are known associates for weight and BMI in adulthood. The current study examines the utility of personality for predicting BMI category – underweight, average, overweight, or obese, determined through CDC norms for age and gender – among a large sample of adolescents (N ≈ 10,000) using multinomial logistic regression. To guard against overfitting, 10-fold cross-validation was repeated 10 times; in addition, accuracy of models was estimated using a hold-out test set. We find that personality traits predict BMI out of sample above and beyond socioeconomic status; in addition, the traits predictive of BMI differ for adolescent girls and boys. We compare accuracy of models using Big Five traits to those using a larger set of narrow traits (the SPI-27) scored from the same set of items.